Health and cancer prevention: knowledge and beliefs of children and young people

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Abstract

***Objective*—To collect information from children and young people about their knowledge of and attitudes towards cancer and their understanding of health and health related behaviours to inform future health promotion work.**

***Design*—Questionnaire survey of 15-16 year olds, and interviews with play materials with 9-10 year old children.**

***Setting*—Six inner city, suburban, and rural schools.**

***Subjects*—226 children aged 15-16 years and 100 aged 9-10 years.**

***Main outcome measures*—Knowledge about different types of cancer; beliefs about health; sources of information; quality of research data obtainable from young children about cancer and health.**

***Results*—Both samples knew most about lung cancer, but there was also some knowledge of breast and skin cancer and leukaemia. Smoking, together with pollution and other environmental factors, were seen as the dominant causes of cancer. Environmental factors were mentioned more often by the inner city samples. Television and the media were the most important sources of information. Young people were more worried about unemployment than about ill health. More than half the young people did not describe their health as good, and most said they did not have a healthy lifestyle. Children were able to provide detailed information about their knowledge and understanding by using drawings as well as interviews.**

***Conclusions*—Children and young people possess considerable knowledge about cancer, especially about lung cancer and smoking, and show considerable awareness of predominant health education messages. Despite this knowledge, many lead less than healthy lifestyles. Health is not seen as the most important goal in life by many young people; the circumstances in which many children and young people live are not experienced as health promoting.**

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Introduction

Effective health education for children and young people underlies the achievement of many national targets for improvement of health.[1] In cancer prevention it acquires particular importance in the light of concern about the rising incidence of certain cancers among young people.[2] Health education that builds on an accurate understanding of the beliefs and knowledge about health of the target group is probably more effective than strategies which lack this foundation.[3] Much health education for children and young people has not been based on what they themselves know, believe, or want to know. There has been a tendency for children's voices, in particular, to be silent.[4,5]

The importance of rooting health education in existing knowledge and belief systems extends the insight of recent social science work on lay understandings of health and illness.[6-9] The ways in which "ordinary" people perceive health and illness in their everyday lives have been shown to diverge considerably from aspects of the "medical" approach. For example, people may consider illness important only if it interferes with normal everyday functioning; fatal illness may thus coexist with a definition of "good health."[6]

The role of children and young people as active constructors of their own health behaviours and understandings is beginning to be described.[10,11] Though research data can be collected from these groups by using well established methodologies, there is also a need to develop new methods of encouraging children to provide information on the ways in which they see health.[12]

Subjects and methods

Data were collected from two samples of children aged 9-10 years and young people aged 15-16 years in six schools. Initially eight primary and eight secondary schools in inner city, suburban, and rural areas were invited to participate on the basis of personal contact and accessiblity to the research team. Three schools in each group agreed.

The schools that refused to take part had similar socioeconomic profiles to those that agreed. They declined on the grounds that cancer was not an appropriate topic to discuss with children. Consent was at the discretion of the headteachers. In one school the head sought parental consent, and in the others the research material was considered suitable for inclusion in the normal curriculum and children and young people were asked for consent.

SAMPLE 1: 15-16 YEAR OLDS

The three schools were a grant maintained, mixed sex comprehensive in Kent; a mixed sex comprehensive in Surrey; and a mixed sex comprehensive in inner London. Precoded questionnaires with some open-ended questions were distributed to all pupils in the last year of compulsory schooling in the three schools. In two schools the questionnaires were completed in the personal and social education part of the curriculum; the third school chose to include them in a history lesson. A total of 250 questionnaires were handed out, of which 226 (90%) were completed.

SAMPLE 2: 9-10 YEAR OLDS

The three schools were a mixed sex primary school in Kent; a mixed sex middle school in Surrey; and a mixed sex primary school in inner London. In each school the researcher was given free access to one class for 90 minutes. A simple interview schedule involving

a "write and draw" technique was devised. After collection of data from individual children, group discussions were held to allay any anxieties. All the children aged 9-10 who were present on the days the research was carried out provided data: 21 children in first school, 51 children in the second, and 28 children in the third (total 100).

ANALYSIS

Quantitative data were coded and entered on a computer database for analysis, with the statistical package for the social sciences. Simple statistical tests of significance (mainly χ^2) were used to examine differences between subgroups of the two samples, particularly in relation to sex, class, ethnic group, household type, and the suburban-rural-urban divide. Children's drawings were scanned and entered on the database by using an Apple flatbed scanner and Ofoto software, which reproduce and store the graphic images on screen. Group discussions were transcribed and qualitative material was used for developing themes and providing illustrative examples as a context for the quantitative data.

Results

SAMPLE 1: 15-16 YEAR OLDS

Although 226 pupils completed questionnaires, not all answered all the questions; therefore the totals for the different questions vary. Overall, 51% (112) of the sample were boys; 70% (156) were white British; 75% (148) came from owner-occupier families; and 65% (116) saw themselves as middle class. Sixty seven per cent (148) lived in two parent families (45% (44/98) of young people in the inner city school were from one parent families headed by women).

Health status

Pupils were asked whether they had any long term illness or disability and whether they had any other health problems. Out of 223 who responded, 35 reported a long term illness and 50 described recurrent short term health problems. In answer to a question about their health over the past year, 102 said that their health was good, 100 that it was fairly good, and 20 that it was not good (the remainder were unsure). Pupils from the inner city school were less likely than those at the other schools to describe their health as good ($P<0.05$). A total of 81 described their lifestyles as healthy, 136 as mixed, and seven as unhealthy.

Health beliefs and behaviours

In answer to a question about worries regarding health, 36 pupils said that they never worried; 78 worried but not very often, 95 sometimes worried, and 17 worried a great deal. Young women were more likely than young men to worry ($P<0.0001$), and the less healthy pupils were also more likely to worry ($P<0.05$).

When the 15-16 year olds were asked to say whether they engaged in any activities on a daily basis that were good or bad for health, the main factor cited as good for health was exercise, and the main factor contributing to bad health was diet, with 90 (48%) admitting to daily consumption of junk food and sweets, and 36 (16%) to smoking.

The young people were asked to rank the following in order of most importance in their life: job security, happiness, success, peace of mind, health, money, friends, love, and family. Happiness was rated as more important that health, love was seen as equally important, and family relationships and job security as nearly as important (table I). A second list asked for a ranking of concerns about the future between unemployment, the environment, violence, AIDS, cancer, heart attack, nuclear war, death, and parents splitting up (table I). Worry about unemployment was the most important concern.

TABLE I—*Numbers of 15-16 year olds mentioning "most important concerns now" and "biggest worries as regards the future"*

Most important concerns now:	
Happiness	42
Health	36
Love	36
Good family relationships	29
Job security	26
Friends	22
Money	15
Success	11
Peace of mind	4
Total	221
Worries about future:	
Unemployment	40
AIDS	38
Death of self/close relative	38
Destruction of environment	19
Cancer	19
Nuclear war	19
Parents splitting up	15
Violence	11
Heart attack	4
Other*	15
Total	218

*Includes rape, pets dying, and getting pregnant.

TABLE II—*Numbers of 15-16 year olds knowing about specific cancers*

Type of cancer	Never heard of	Heard of/ don't know	Heard of/ know about	Total
Lung	2	70	151	223
Skin	9	101	110	220
Stomach	86	102	32	220
Bladder	104	86	27	217
Leukaemia	6	88	120	214
Colon	131	72	14	217
Breast	8	93	121	222
Uterine	105	79	36	220
Cervical	92	77	50	219
Ovarian	154	49	14	217
Testicular	140	54	23	217
Prostate	145	58	15	218
Pancreas	137	65	14	216
"Foodpipe"	149	26	10	185

TABLE III—*Numbers of 15-16 year olds mentioning different sources of information about cancer*

Source of information	No of people
Television and media	105
Teachers	39
Mothers	32
Others*	50
Total	226

*Others=fathers, siblings, friends, grandparents, health professionals.

Knowledge and beliefs about cancer

Pupils were asked how much they thought they knew about cancer generally. Twenty knew nothing, 116 a little, 83 a "reasonable amount," and three a lot. Table II shows levels of knowledge about particular cancers; these vary from 151 who said they had heard of and knew about lung cancer to 10 who had heard of and knew about cancer of the "foodpipe." Young people of Asian origin were least likely to know about cancers associated with reproductive organs ($P<0.05$).

A series of statements about the importance of cancer as a cause of death and the extent to which it is a fatal, curable, hereditary, or preventable illness was included in the questionnaire. Forty two per cent (95) of the young people thought that cancer was a major cause of adult death and 14% (32) that it was a major cause of young people's death. Greater knowledge was associated with more disagreement with the statement that cancer is a major cause of young people's deaths ($P<0.01$). Only 12% of the sample (27) believed that

"you are bound to die if you get cancer"; three quarters (170) thought that cancer can be cured.

Sources of information

Teachers were the most likely confidants for young people's discussions about cancer (75), followed by parents (67) and friends (67) equally. Young women were more likely to talk to their mothers ($P<0{\cdot}01$) and young men more likely to talk to their teachers ($P<0{\cdot}05$). Table III shows sources of information about cancer: television and the media generally provided information for 105 of the sample. Within this category, television documentaries provided most information (not shown in table), especially for middle class young people in rural and suburban areas. Television "soaps" were more important for young women and for pupils in the inner city area, who also said they received least information from school itself.

The causes of cancer

A section in the questionnaire asked young people to write down what they thought and tick a series of statements about the causes of cancer. One hundred and sixty eight of those answering thought that smoking was important in some types of cancer, 179 thought that sunburn was, 137 pollution, 127 the environment, 116 alcohol, 112 bad diet, 107 unprotected sex, 81 stress, and 72 food additives.

SAMPLE 2: 9-10 YEAR OLDS

There were more boys than girls in the primary school sample (57 *v* 43). Children were asked to give some basic demographic data: given what they said that their parents did for a living, 54 were middle and 42 working class. Four were "unclassified" because of imprecise descriptions—for example, "he helps other schools with their problems and does fences" or "Thames Water." Descriptions of who lived in the children's households were similarly variable—for example, "Mum, dad, two brothers, two cats, Super Ted, and me"; "Mum, tenant, hamster, and me—Dad is dead." Household pets were often important family members.

"Healthy" and "unhealthy" things

The children were asked to "write or draw anything you think keeps you healthy" and "anything you think makes you unhealthy." The factors mentioned were then classified into categories. The largest category of factors implicated in health was diet—healthy food,

TABLE IV—*Numbers of 9-10 year olds knowing about different types of cancer* (n=100)*

Type of cancer	No of children
Lung	76
Breast	14
Leukaemia/blood	24
Skin	26
Heart	21
Brain and head	16
Arms and legs	9
Kidney	9
Stomach	6
Mouth	5
Private(s)/bits	5
Penis	3
Pets	3
Neck	2
Face	2
Breath	2
Back	1

*Children could give more than one answer.

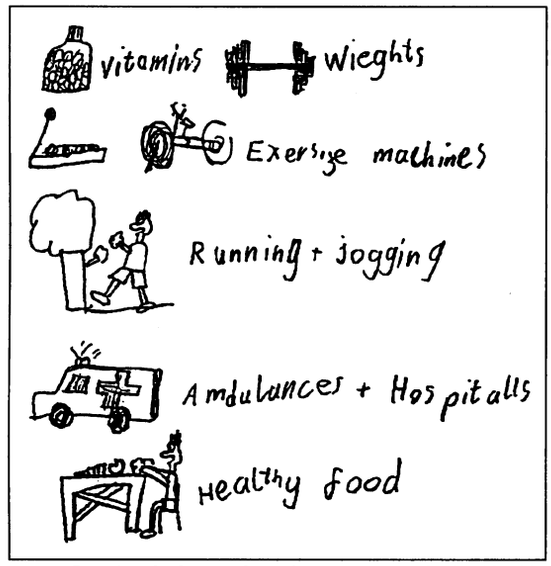

FIG 1—*Drawings by boy aged 10, from inner city school, of healthy factors in daily life*

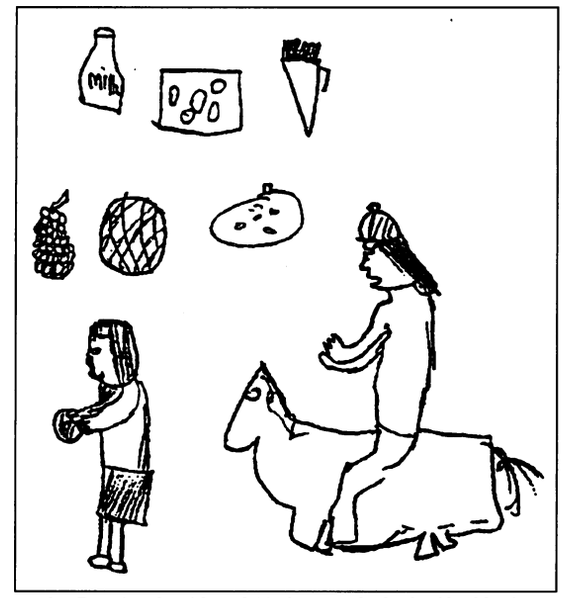

FIG 2—*Drawings by girl aged 10, from rural school, of healthy factors in daily life*

which featured in three quarters (73) of the drawings. Fruit occurred in 67, vegetables or greens in 35; other mentions of healthy food included fish, cheese, eggs, soup, cereals, "not eating meat," milk, mineral water, milkshakes, vitamins, and iron. The second largest category after food was exercise and sport (71). Others were concerned with hygiene—cleaning teeth, washing, bathing, etc (15); not smoking (12); and sleep (9). Other miscellaneous mentions of health factors were keeping warm, "nice home," ambulances, hospitals, going to dentist, sun, air, rain, trees, flowers, "going to toilet," asthma spray, kissing, sex, condoms, books, piano, and "shopping for." There were not statistical differences by sex or school in these categories. Figures 1 and 2 show examples of drawings.

Smoking featured in 83 of the children's drawings about factors contributing to ill health; 65 referred to diet, 37 to the environment, 11 to violence, 11 to hygiene, nine to alcohol, and eight to medicines. In the diet category, pictures or verbal descriptions, or both, included "being fat," fatty meat, sugar, salt, pop or fizzy drinks, burgers, fast food, chips, crisps, fatty food, cakes, meat, chocolate, sugary food, red meat, "too much food," school dinners, beans, "Weetabix and lemon custard," "fish salad," oil seed rape, dieting, no food, and anorexia. In the category of environmental factors there were "smelly odours," smog, pollution, petrol, bad gases, car fumes, acid, factories, ozone layer, motorway, cars, running in road, microwaves, cutting down the rain forest, toxic waste, swimming in chlorine, bad water, dustbins, sun, heat, fire, lack of fresh air, computers, litter, and poison; "violence" included mentions of cuts, mugging, stabbing, knives, fighting, "dangerous drunks," guns, nuclear arms, bombs, wars, and tanks.

There was a large miscellaneous category of "other" factors contributing to ill health. This included "not sleeping," laziness, lack of exercise, overwork, constipation, posture, fleas, doctors, teachers, school, police, John Major, being homeless, bedsits, winter, sex without condoms, sex, jogging, spitting, "burping," "farting," reading while eating, Sundays, "my brother," "my sister," sharks, "dog pooh," and "food shopping." Environmental factors bad for health were mentioned more often by children in the inner city school. Figures 3 and 4 give examples of children's drawings in the "bad for health" category.

Knowledge and beliefs about cancer

The children were asked to "write or draw anything

you know about cancer." Forty six said "you can die from it" and 40 that it can be caused by smoking. Thirty said it makes you lose your hair (in one school a child had recently been treated for leukaemia, resulting in hair loss).

There were four main themes in the children's drawings of cancer: fires in the body (often associated with smoking as a cause; fig 5); specific parts of the body affected, often involving loss of hair (fig 6);

TABLE V—*Numbers of 9-10 year olds giving different answers to question "What can you do to try to stop yourself getting cancer?"* (n=100)*

Done to avoid cancer	No of children
Don't smoke/never start smoking	78
Avoid sunburn	15
Keep healthy generally	15
Eat healthy/good food	12
Avoid pollution	10
Don't drink too much alcohol	9
Avoid passive smoking	8
Don't take drugs	6
Have injections/antibiotics	4
Stay indoors	3
Use a condom	2

*Children could give more than one answer.

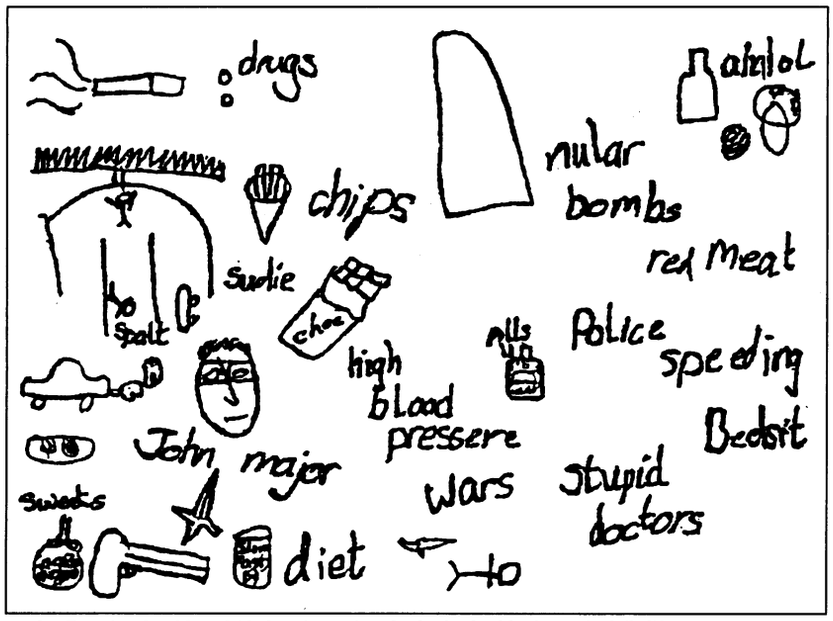

FIG 3—*Drawings by girl aged 10, from inner city school, of unhealthy factors in daily life*

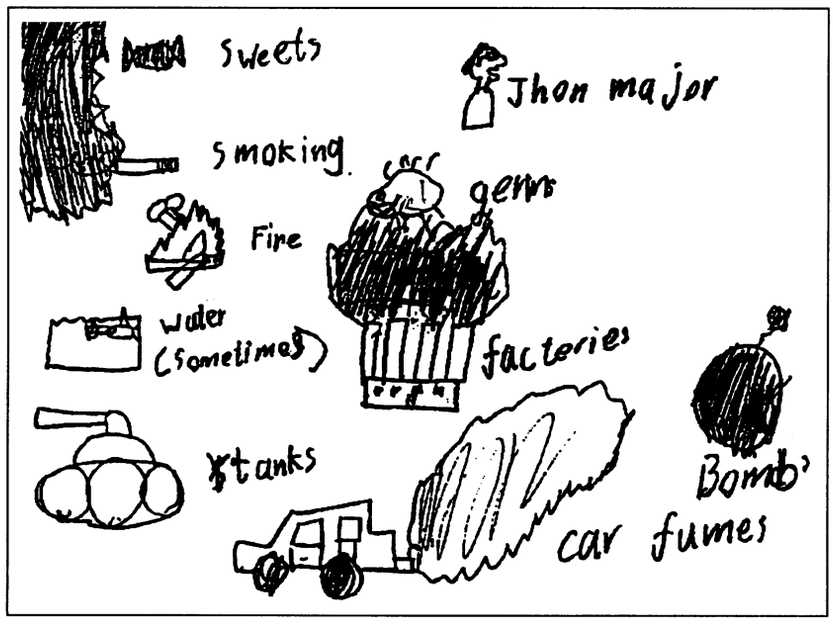

FIG 4—*Drawings of boy aged 10, from inner city school, of unhealthy factors in daily life*

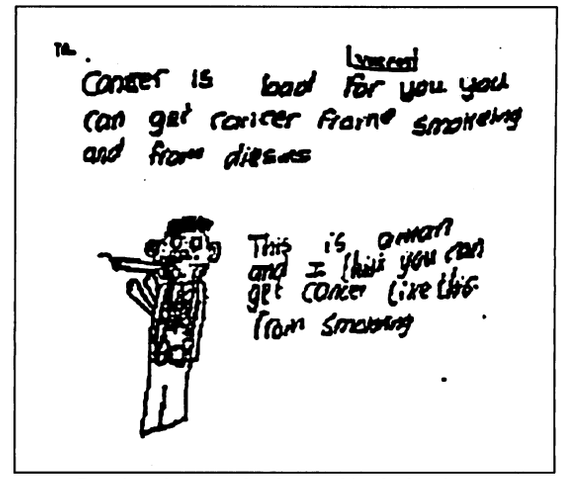

FIG 5—*Drawing of cancer related to smoking by boy from inner city school*

drawings of cancer as a group of cells (fig 7); and cancer in the form of unpleasant faces or monsters (fig 8). Fifty four children said that they knew someone who has or has had cancer; personal contact significantly increased the amount of information the children displayed. Table IV shows the types of cancer the children said that they knew about, ranging from 76 for lung cancer to one for "back" cancer.

The most commonly mentioned source of information for children about cancer was television, especially television "soaps" (45). The Australian soaps *Neighbours* and *Home and Away* were often mentioned as a source of information about skin cancer; at the time the research was carried out a character in *Home and Away* was dying of leukaemia. Table V shows the children's ideas about cancer prevention; avoiding smoking was mentioned by 78 of them.

Discussion

Children and young people have considerable knowledge about the factors contributing to good and bad health and about the causes and prevention of cancer. Smoking and poor diet are widely understood to be negative factors. Factors associated with the environment are also seen as important. Young people may not translate their knowledge of the positive health factors under their control into relevant behaviours because health is not seen as the most important goal in life or because they experience their living conditions as constraining their ability to make health choices, or both. Children's perceptions of factors contributing to good and bad health often integrate the personal and the environmental, suggesting a lack of distinction between those under individual control and those stemming from living conditions.

RESEARCH WITH CHILDREN

Our data show that young people and children can provide detailed information about their perceptions and beliefs regarding health in general and cancer in particular. Though different research instruments were used for the two groups (and this must be borne in mind when interpreting the data), it is an important methodological point that obtaining data from children requires a special approach. The "jokey" responses some of the children gave are characteristic of this age group and do not render their answers invalid. We cannot rule out some sharing of information and responses (but this happens with adult samples too). The presence of the researcher during all the sessions with children ensured that teachers did not direct their responses.

The use of drawings in collecting data from children

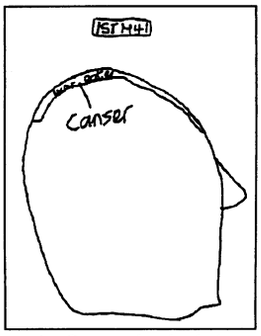

FIG 6—*Cancer related to hair loss drawn by boy from rural school*

shows that this is a valuable research tool. From a methodological point of view, the research makes a contribution to developing techniques for research on and with children within the developing discipine of "children's studies."[13] Scanning the children's pictures into a computer database allowed these to be retrieved and analysed like other qualitative and quantitative data.

While the research samples were not selected to be representative of the total school population in the United Kingdom, children and young people in inner city, rural, and suburban areas were included. The research was intended to examine whether useful data on cancer and health beliefs could be selected from

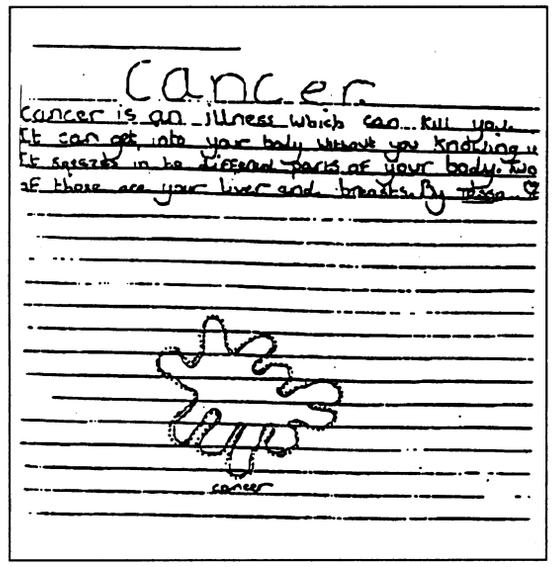

FIG 7—*Cancer as group of cells drawn by girl from inner city school*

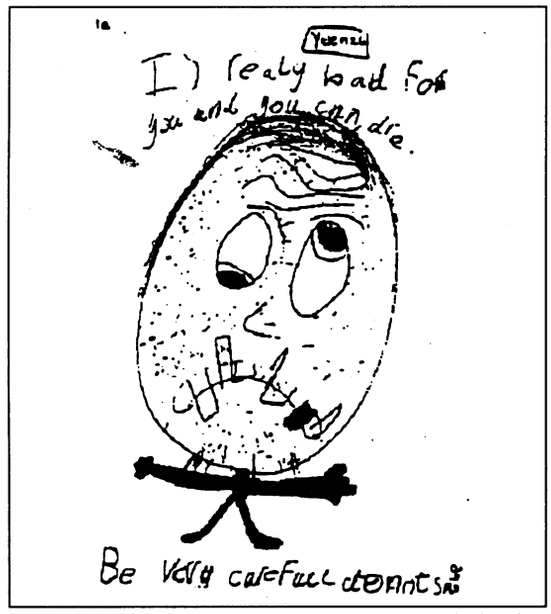

FIG 8—*Cancer as character with monstrous face drawn by boy from inner city school*

such a sample and to yield information on the range of responses, rather than to produce strictly generalisable data. We are now replicating the study in the north of England.

MODELS OF HEALTH EDUCATION

The findings suggest a need to move away from the traditional individualistic model of health education to an approach which takes into account the way in which children and young people's health behaviour is affected by the circumstances of their lives, many of which are beyond their individual control. Although knowledge was considerable, there is little to suggest that this was a result of health education directly; television and other mass media were the most important sources of information.

The data on children's perceptions of cancer are part of a broader picture in which accurate understandings of cancer are obstructed by cultural metaphors of fatality, contagion, and blame.[14] Educating children and young people directly about cancer is feasible and important. Our data suggest the need to balance wanted and accurate information with avoiding the creation of undue anxiety. Teachers and schools have an important part to play as providers of health information (even if they are sometimes themselves considered to be bad for health[15]). Health education should take account of ethnic, sex, and class differences in children and young people's knowledge of and understanding about health and should be based on what children and young people say they know and want to know. The level of ill health reported among 15-16 year olds and the general anxiety about health is surprisingly high, suggesting a need for health information and attention to the causes of health problems in this age group.

Key messages

- Children and young people possess considerable knowledge about cancer, especially about lung cancer and smoking
- Many young people do not consider their health to be good and do not lead healthy lifestyles
- Health is less of a priority to teenagers than being able to get jobs
- Children and young people living in the inner city perceive environmental factors as important influences on health
- Collecting data from primary school children by using drawings is a valuable research tool

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